AMENDMENTS TO THE CLAIMS

CLAIMS 1-48 (CANCELED).

CLAIM 49 (CURRENTLY AMENDED): A method of ~~detecting a direction of rotation of~~ operating an electronically controlled derailleur to switch a chain among a plurality of sprockets including a first sprocket and a second sprocket mounted together on a sprocket mounting sleeve that is rotatably supported relative to an axle so that the sprocket mounting sleeve and the plurality of sprockets together rotate relative to the axle around a common axis, wherein the method comprises the steps of:

rotating a first sensor element together with the sprocket mounting sleeve and the plurality of sprockets;

disposing a second sensor element on the bicycle so that the first sensor element rotates relative to the second sensor element;

wherein one of the first sensor element and the second sensor element comprises:

a first sensor unit for communicating with the other one of the first sensor element and the second sensor element; and

a second sensor unit for communicating with the other one of the first sensor element and the second sensor element;

wherein the first sensor unit is offset from the second sensor unit in a circumferential direction;

~~detecting, by the first sensor unit and the second sensor unit, passage of the other one of the first sensor element and the second sensor element by the first sensor unit and the second sensor unit; and~~

receiving a first signal when the other one of the first sensor element and the second sensor element operatively passes by the first sensor unit as the plurality of sprockets rotate relative to the second sensor element;

receiving a second signal when the other one of the first sensor element and the second sensor element operatively passes by the second sensor unit as the plurality of sprockets rotate relative to the second sensor element;

determining a direction of rotation of the plurality of sprockets based on ~~when the other one of the first sensor element and the second sensor element passes by the first sensor unit and the second sensor unit~~ receipt of at least one of the first signal and the second signal; and

commanding the derailleur to shift the chain between the first sprocket and the second sprocket in response to receipt of at least one of the first signal and the second signal.

CLAIM 50 (PREVIOUSLY PRESENTED): The method according to claim 49 wherein the first sensor element comprises a signal generating element, wherein the first sensor unit comprises a first signal receiving element, and wherein the second sensor unit comprises a second signal receiving element.

CLAIM 51 (PREVIOUSLY PRESENTED): The method according to claim 50 wherein the signal generating element comprises a magnet.

CLAIM 52 (PREVIOUSLY PRESENTED): The method according to claim 49 wherein the second sensor element comprises the first sensor unit and the second sensor unit.

CLAIM 53 (CURRENTLY AMENDED): The method according to claim 52 wherein the step of disposing the second sensor element on the bicycle comprises the step of disposing the second sensor element on ~~a~~ the rear derailleur so that the second sensor element is fixed relative to a frame of the bicycle when the first signal and the second signal are received.

CLAIM 54 (CURRENTLY AMENDED): A method of ~~detecting a speed of rotation of~~ operating an electronically controlled derailleur to switch a chain among a plurality of sprockets including a first sprocket and a second sprocket mounted together on a sprocket mounting sleeve that is rotatably supported relative to an axle so that the sprocket mounting sleeve and the plurality of sprockets together rotate relative to the axle around a common axis, wherein the method comprises the steps of:

rotating a first sensor element together with the sprocket mounting sleeve and the plurality of sprockets;

disposing a second sensor element on the bicycle so that the first sensor element rotates relative to the second sensor element;

wherein one of the first sensor element and the second sensor element comprises:

a first sensor unit for communicating with the other one of the first sensor element and the second sensor element; and

a second sensor unit for communicating with the other one of the first sensor element and the second sensor element;

wherein the first sensor unit is offset from the second sensor unit in a circumferential direction;

~~detecting, by the first sensor unit and the second sensor unit, passage of the other one of the first sensor element and the second sensor element by the first sensor unit and the second sensor unit; and~~

receiving a first signal when the other one of the first sensor element and the second sensor element operatively passes by the first sensor unit as the plurality of sprockets rotate relative to the second sensor element;

receiving a second signal when the other one of the first sensor element and the second sensor element operatively passes by the second sensor unit as the plurality of sprockets rotate relative to the second sensor element;

determining a speed of rotation of the plurality of sprockets based on ~~when the other one of the first sensor element and the second sensor element passes by the first sensor unit and the second sensor unit~~ receipt of at least one of the first signal and the second signal; and.

commanding the derailleur to shift the chain between the first sprocket and the second sprocket in response to receipt of at least one of the first signal and the second signal.

CLAIM 55 (PREVIOUSLY PRESENTED): The method according to claim 54 wherein the first sensor element comprises a signal generating element, wherein the first sensor unit comprises a first signal receiving element, and wherein the second sensor unit comprises a second signal receiving element.

CLAIM 56 (PREVIOUSLY PRESENTED): The method according to claim 55 wherein the signal generating element comprises a magnet.

CLAIM 57 (PREVIOUSLY PRESENTED): The method according to claim 54 wherein the second sensor element comprises the first sensor unit and the second sensor unit.

CLAIM 58 (CURRENTLY AMENDED): The method according to claim 57 wherein the step of disposing the second sensor element on the bicycle comprises the step of disposing the second sensor element on ~~a~~ the rear derailleur so that the second sensor element is fixed relative to a frame of the bicycle when the first signal and the second signal are received.

CLAIM 59 (NEW): The method according to claim 49 wherein the determining step comprises the step of determining a direction of rotation of the plurality of sprockets based on which one of the first signal and the second signal is received first.

CLAIM 60 (NEW): The method according to claim 54 wherein the determining step comprises the step of determining a speed of rotation of the plurality of sprockets based on an elapsed time between receiving the first signal and receiving the second signal.

CLAIM 61 (NEW): A method of operating an electronically controlled derailleur to switch a chain among a plurality of sprockets including a first sprocket and a second sprocket mounted together on a sprocket mounting sleeve that is rotatably supported relative to an axle so that the sprocket mounting sleeve and the plurality of sprockets together rotate relative to the axle around a common axis, wherein the method comprises the steps of:

rotating a first sensor element together with the sprocket mounting sleeve and the plurality of sprockets;

disposing a second sensor element on the bicycle so that the first sensor element rotates relative to the second sensor element;

wherein one of the first sensor element and the second sensor element comprises:

a first sensor unit for communicating with the other one of the first sensor element and the second sensor element; and

a second sensor unit for communicating with the other one of the first sensor element and the second sensor element;

wherein the first sensor unit is offset from the second sensor unit in a circumferential direction;

receiving a first signal when the other one of the first sensor element and the second sensor element operatively passes by the first sensor unit as the plurality of sprockets rotate relative to the second sensor element;

receiving a second signal when the other one of the first sensor element and the second sensor element operatively passes by the second sensor unit as the plurality of sprockets rotate relative to the second sensor element;

determining a direction of rotation of the plurality of sprockets based on receipt of at least one of the first signal and the second signal; and

commanding the derailleur to shift the chain between the first sprocket and the second sprocket in response to receipt of at least one of the first signal and the second signal so that the derailleur begins moving to shift the chain when the plurality of sprockets are located at a predetermined rotational position relative to the derailleur.

CLAIM 62 (NEW): A method of operating an electronically controlled derailleur to switch a chain among a plurality of sprockets including a first sprocket and a second sprocket mounted together on a sprocket mounting sleeve that is rotatably supported relative to an axle so that the sprocket mounting sleeve and the plurality of sprockets together rotate relative to the axle around a common axis, wherein the method comprises the steps of:

rotating a first sensor element together with the sprocket mounting sleeve and the plurality of sprockets;

disposing a second sensor element on the bicycle so that the first sensor element rotates relative to the second sensor element;

wherein one of the first sensor element and the second sensor element comprises:

a first sensor unit for communicating with the other one of the first sensor element and the second sensor element; and

a second sensor unit for communicating with the other one of the first sensor element and the second sensor element;

wherein the first sensor unit is offset from the second sensor unit in a circumferential direction;

receiving a first signal when the other one of the first sensor element and the second sensor element operatively passes by the first sensor unit as the plurality of sprockets rotate relative to the second sensor element;

receiving a second signal when the other one of the first sensor element and the second sensor element operatively passes by the second sensor unit as the plurality of sprockets rotate relative to the second sensor element;

determining a speed of rotation of the plurality of sprockets based on receipt of at least one of the first signal and the second signal; and

commanding the derailleur to shift the chain between the first sprocket and the second sprocket in response to receipt of at least one of the first signal and the second signal so that the derailleur begins moving to shift the chain when the plurality of sprockets are located at a predetermined rotational position relative to the derailleur.

CLAIM 63 (NEW): A method of detecting a direction of rotation of a plurality of rear sprockets mounted together on a sprocket mounting sleeve that is rotatably supported relative to an axle of a bicycle so that the sprocket mounting sleeve and the plurality of sprockets together rotate relative to the axle around a common axis, wherein a rear derailleur switches a chain among the plurality of sprockets, and wherein the method comprises the steps of:

rotating a first sensor element together with the sprocket mounting sleeve and the plurality of sprockets;

disposing a second sensor element on the bicycle so that the first sensor element rotates relative to the second sensor element;

wherein one of the first sensor element and the second sensor element comprises:

a first sensor unit for communicating with the other one of the first sensor element and the second sensor element; and

a second sensor unit for communicating with the other one of the first sensor element and the second sensor element;

wherein the first sensor unit is offset from the second sensor unit in a circumferential direction;

receiving a first signal when the other one of the first sensor element and the second sensor element operatively passes by the first sensor unit as the plurality of sprockets rotate relative to the second sensor element;

receiving a second signal when the other one of the first sensor element and the second sensor element operatively passes by the second sensor unit as the plurality of sprockets rotate relative to the second sensor element;

determining a direction of rotation of the plurality of sprockets based on receipt of at least one of the first signal and the second signal; and

wherein the step of disposing the second sensor element on the bicycle comprises the step of disposing the second sensor element on the rear derailleur so that the second sensor element is fixed relative to a frame of the bicycle when the first signal and the second signal are received.

CLAIM 64 (NEW): A method of detecting a speed of rotation of a plurality of rear sprockets mounted together on a sprocket mounting sleeve that is rotatably supported relative to an axle of a bicycle so that the sprocket mounting sleeve and the plurality of sprockets together rotate relative to the axle around a common axis, wherein a rear derailleur switches a chain among the plurality of sprockets, and wherein the method comprises the steps of:

rotating a first sensor element together with the sprocket mounting sleeve and the plurality of sprockets;

disposing a second sensor element on the bicycle so that the first sensor element rotates relative to the second sensor element;

wherein one of the first sensor element and the second sensor element comprises:

a first sensor unit for communicating with the other one of the first sensor element and the second sensor element; and

a second sensor unit for communicating with the other one of the first sensor element and the second sensor element;

wherein the first sensor unit is offset from the second sensor unit in a circumferential direction;

receiving a first signal when the other one of the first sensor element and the second sensor element operatively passes by the first sensor unit as the plurality of sprockets rotate relative to the second sensor element;

receiving a second signal when the other one of the first sensor element and the second sensor element operatively passes by the second sensor unit as the plurality of sprockets rotate relative to the second sensor element;

determining a speed of rotation of the plurality of sprockets based on receipt of at least one of the first signal and the second signal; and

wherein the step of disposing the second sensor element on the bicycle comprises the step of disposing the second sensor element on the rear derailleur so that the second sensor element is fixed relative to a frame of the bicycle when the first signal and the second signal are received.